

WHAT IS CLAIMED IS:

1. Input buffer type packet switching equipment, comprising:

M input line buffers that store cells inputted from M input lines temporarily in a state that one of said M input line buffers stores cells inputted from corresponding one of said M input lines, in this the M is an integer being 2 or more;

an $M \times N$ crossbar type switch, which provides N output lines, for switching cells outputted from said M input line buffers based on a cross point on/off control signal, in this N is an integer being 2 or more;

N output line sections, which are provided for each of said N output lines of said $M \times N$ crossbar type switch, for outputting cells applied switching at said $M \times N$ crossbar type switch to N external output lines; and

an arbiter that outputs a connection permission signal to one of said M input line buffers based on connection request signals outputted from said M input line buffers, and also outputs said cross point on/off control signal to said $M \times N$ crossbar type switch, and outputs said connection permission signal at a designated slower timing interval than a normal timing interval to one input line buffer that outputs cells to an external output line whose output line rate is slower than a corresponding input line rate.

2. Input buffer type packet switching equipment in accordance with claim 1, wherein:

said arbiter, comprising:

a connection request signal processing section that receives said connection request signals from said M input line buffers and processes said received connection request signals;

a contention controller for deciding that one of said M input line buffers requested the connection reads cells for what external output line,

based on the connection request from said M input line buffers outputted
10 from said connection request signal processing section; and

a connection permission signal processing section that outputs
said connection permission signal to one of said M input line buffers
based on the contention processed result from said contention controller,
and also outputs said cross point on/off control signal to said $M \times N$
15 crossbar type switch, and wherein:

in case that said connection permission is given to one input
line buffer which outputs cells to the external output line whose output
line rate is slower than the corresponding input line rate, said connection
permission signal processing section controls so that said contention
20 controller does not execute the contention control for a designated
interval corresponding to the slower output line rate than the input line
rate.

3. Input buffer type packet switching equipment in
accordance with claim 2, wherein:

in case that said connection permission is given to one input
line buffer which output cells to the external output line whose output
5 line rate is slower than the corresponding input line rate,

said connection permission signal processing section outputs a
mask signal for stopping the contention control for a designated period to
said contention controller and also outputs a mask cancellation signal for
canceling the stopping of said contention control after passing said
10 designated period to said contention controller.

4. Input buffer type packet switching equipment in
accordance with claim 3, wherein:

said designated period is designated times of a normal timing
interval of said connection permission signal in the case that said

- 5 connection permission is given to one input line buffer for an external output line whose output line rate is the same that the corresponding input line has.

5. Input buffer type packet switching equipment in accordance with claim 1, wherein:

each of said M input line buffers comprising:

- 5 N FIFOs, whose number is the same that said output lines of said $M \times N$ crossbar type switch have, for storing cells for said N external output lines temporarily and outputting said connection request signal at the time when said cells are stored;

- a distributor that distributes cells inputted from said M input lines to each of said FIFOs, corresponding to said external output line
10 obtained from header information of said cells; and

a selector that selects one FIFO to be read corresponding to said connection permission signal inputted from said arbiter from said N FIFOs.

6. An output line rate converting method at input buffer type packet switching equipment, which provides:

- M input line buffers that store cells inputted from M input lines temporarily in a state that one of said M input line buffers stores cells
5 inputted from corresponding one of said M input lines, in this the M is an integer being 2 or more;

an $M \times N$ crossbar type switch, which provides N output lines, for switching cells outputted from said M input line buffers based on a cross point on/off control signal, in this N is an integer being 2 or more;

- 10 N output line sections, which are provided for each of said N output lines of said $M \times N$ crossbar type switch, for outputting cells applied switching at said $M \times N$ crossbar type switch to N external output

lines; and

an arbiter that outputs a connection permission signal to one of
15 said M input line buffers based on connection request signals outputted
from said M input line buffers, and also outputs said cross point on/off
control signal to said $M \times N$ crossbar type switch, wherein:

said arbiter, comprising the step of:

outputting said connection permission signal to one of said M
20 input line buffers by using a designated slower timing interval than a
normal timing interval in case that cells are outputted to an external
output line whose output line rate is slower than a corresponding input
line rate.